

## **REMARKS**

These remarks and the above amendments are responsive to the final Office action dated April 20, 2004 and support the accompanying Request for Continued Examination as a submission under 37 C.F.R. § 1.114(c). Claims 1-19 and 53 are pending in the application, with claims 20-52 withdrawn, following previous restriction requirements and amendments. The final Office action can be summarized as follows:

- The Examiner withdrew previous rejections under 35 U.S.C. § 112, second paragraph.
- The Examiner rejected claims 1, 2, 4, 5, 9, 11, 14, 19, and 53 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,452,773 to Molday ("Molday").
- The Examiner rejected claims 3 and 6-8 under 35 U.S.C. § 103(a) as being unpatentable over Molday in view of U.S. Patent No. 4,628,037 to Chagnon et al. ("Chagnon").
- The Examiner rejected claims 15-17 under 35 U.S.C. § 103(a) as being unpatentable over Molday in view of U.S. Patent No. 4,048,298 to Niswender ("Niswender").
- The Examiner indicated that claims 10, 12, and 18 are free of the prior art.
- The Examiner was silent regarding claim 13.

Applicant traverses the rejections. In particular, applicant does not believe that the cited references or any other references teach or suggest a method of separating a target material from a liquid mixture as recited in the rejected claims. Nevertheless, to expedite issuance of a patent, and to more particularly point out and distinctly claim aspects of the invention, applicant has canceled the pending claims, without prejudice, and added new claims 54-75. The new claims focus less on the magnetizable particles used and more on the processes used to prepare the particles than the previous claims. Applicant

believes that the new claims clearly embody significant differences between the claimed methods and the cited references. These differences include forming and at least substantially purifying aggregates of crystallites for use in the magnetizable particles before coating the aggregates with a polysaccharide material. These differences may have a number of advantages, as described below, including substantially increasing the fraction of magnetic material per particle. Thus, for at least these reasons, applicant respectfully requests grant of the accompanying request for continued examination, favorable consideration of the new claims, and prompt issuance of a Notice of Allowance.

**I. Power of Attorney**

Applicant will be submitting, under separate cover, a Power of Attorney form appointing the practitioners (including the undersigned practitioner) at Kolisch Hartwell, P.C., USPTO Customer No. 23581, as his attorneys and agents to prosecute the above-identified patent application and to transact all business connected therewith in the U.S. Patent and Trademark Office.

**II. Request for Continued Examination**

Applicant is submitting herewith a Request for Continued Examination (RCE) under 37 C.F.R. § 1.114. This Request complies with the requirements of 37 C.F.R. § 1.114. In particular:

- (i) Prosecution in the application is closed, since the last action was a final Office action under 37 C.F.R. § 1.113.
- (ii) The Request is accompanied by a submission as set forth at 37 C.F.R. § 1.114(c), specifically, this Response to Final Office Action, including the amendments and remarks set forth herein.

- (iii) The Request is accompanied by the fee set forth at 37 C.F.R. § 1.17(e).

Accordingly, applicant respectfully requests grant of this Request for Continued Examination.

### **III. Claim Rejections – 35 U.S.C. § 102 / 103**

The Examiner rejected claims 1-9, 11, 14-17, 19, and 53 as anticipated by or unpatentable over Molday. Applicant traverses these rejections. In particular, applicant does not believe that Molday or any other reference teaches or suggests a method of separating a target material from a liquid mixture as recited in the rejected claims. Nevertheless, to expedite issuance of a patent, and to more particularly point out and distinctly claim aspects of the invention, applicant has canceled the pending claims, without prejudice, and added new claims 54-75. The new claims emphasize processes used to prepare the particles, rather than the particles themselves, since such an approach may illustrate more readily the patentable differences between applicant's claimed methods and Molday. These differences include applicant's step(s) of forming and at least substantially purifying aggregates of crystallites for use in the magnetizable particles before coating the aggregates with a polysaccharide material. These differences may have a number of advantages, as described below, including potentially substantially increasing the fraction of magnetic material per particle.

Applicant's new claims, like applicant's old claims, recite methods for separating a target material from a liquid mixture. These methods include a step of selecting colloidal magnetizable particles having a binding affinity for the target material. These magnetizable particles are used to bind and separate the target material, in subsequent steps. The particles, as claimed, are prepared by (A) forming and at least substantially

purifying aggregates of two or more crystallites of a magnetizable metal oxide, (B) coating the formed and at least substantially purified aggregates with a polysaccharide material, and (C) treating the polysaccharide material so that it has a binding affinity for the target material. The process of forming and purifying aggregates before coating the aggregates reduces the likelihood that the aggregates will trap and/or be held together by coating material, since the aggregates exist prior to the addition of the coating material.

Molday, in contrast to applicant's claimed invention, discloses a "one-pot" method for preparing magnetic iron-dextran microspheres. Molday's method involves mixing iron salts (ferric and ferrous chlorides) and coating materials together to form magnetic iron-dextran microspheres.<sup>1</sup> The resulting particles are about 50% iron, by weight,<sup>2</sup> implying that they are about 30% dextran.<sup>3</sup> In contrast, the claimed methods involve forming and at least substantially purifying aggregates of crystallites of a magnetizable magnetic oxide, and then coating the formed and at least substantially purified aggregates with a polysaccharide material. The resulting particles may have less (potentially significantly less) dextran than Molday's particles. For example, in an embodiment of the claimed invention, the particles are about 15% dextran.<sup>4</sup> The twofold greater fraction of dextran in Molday's particles may arise because dextran is incorporated into and onto, rather than simply onto, Molday's particles. However,

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<sup>1</sup> See, e.g., Molday, column 8, lines 33-37.

<sup>2</sup> See, e.g., id. at column 11, lines 8-10.

<sup>3</sup> Fifty percent iron implies about 70% Fe<sub>3</sub>O<sub>4</sub>, which in turn implies about 30% dextran, all measured by weight.

<sup>4</sup> Particles produced in an embodiment of the claimed invention have about 0.25 mg dextran per mg iron, which implies that they have about 0.25 mg dextran per 1.43 mg Fe<sub>2</sub>O<sub>3</sub>, or about 15% dextran, measured by weight.

whatever its origin, the twofold greater fraction of dextran in Molday's particles implies that Molday's particles should be significantly less magnetic, weight-by-weight, and thus proportionally more difficult to separate, than particles produced in the above-mentioned embodiment of applicant's claimed method.

Thus, for at least these reasons, new claim 54 is patentable over Molday.

New claims 55-75 depend from and further limit claim 54 and so are patentable for at least the reasons that claim 54 is patentable.

#### **IV. Claim Amendments**

Applicant has canceled pending and withdrawn claims 1-53, without prejudice, and added new claims 54-75, for reasons described above. The new claims are supported by the previous claims and specification, at least as indicated below:

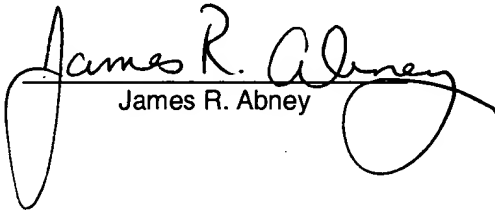
<b>New Claim</b>	<b>Exemplary Support</b>
54	Original claim 1 and specification
55	Original claim 2
56	Original claim 3
57	Original claim 4
58	Original claim 5
59	Original claim 9
60	Original claim 10
61	Original claim 11
62	Original claim 12
63	Original claim 6
64	Original claim 7
65	Original claim 13
66	Original claims 4 and 5
67	Original claim 8
68	Original claim 1
69	Original claim 14
70	Original claim 15
71	Original claim 16
72	Original claim 17
73	Original claim 18
74	Original claim 19
75	Original claim 53

**V. Conclusion**

In conclusion, applicant believes that he has addressed all of the issues raised by the Examiner in the final Office action, and that the application currently is in condition for allowance. However, if the Examiner has any questions or comments, or if a telephone interview would advance prosecution of the application, the Examiner is encouraged to call applicant's undersigned attorney at the telephone number listed below.

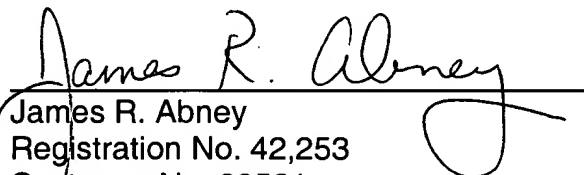
**CERTIFICATE OF MAILING**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450, on August 20, 2004.

  
James R. Abney

Respectfully submitted,

KOLISCH HARTWELL, P.C.

  
James R. Abney  
Registration No. 42,253  
Customer No. 23581  
Attorney for Applicant  
520 S.W. Yamhill Street, Suite 200  
Portland, Oregon 97204  
Telephone: (503) 224-6655  
Facsimile: (503) 295-6679